0055044

Date:

21 November 2000

To:

Bechtel Hanford, Inc. (technical representative)

From:

TechLaw, Inc.

Project:

100H Areas - Full Protocol - Waste Site 116-H-7 Overburden

Subject: Radiochemistry - Data Package No. H0988-TR (SDG No. H0988)

INTRODUCTION

This memo presents the results of data validation on Summary Data Package No. H0988-TR which was prepared by ThermoRetec (TR). A list of samples validated along with the analyses reported and the requested analytes is provided in the following table.

Sample ID	Sample Date	Madia	Validation	Analysis
B101W6	8/23/00	Soil	c ·	See note 1
B101W7	8/23/00	Soil	С	See note 1
B101W8	8/23/00	Soil	С	See note 1
B101W9	8/23/00	Soil	С	See note 1
B101X0	8/23/00	Soil	С	See note 1
B101X1	8/23/00	Soil	С	See note 1
B101X2	8/23/00	Soil	С	See note 1
B101X3	8/23/00	Soil	С	See note 1
B101X4	8/23/00	Soil	с	See note 1

^{1 -} Gamma spectroscopy; total strontium; alpha spectroscopy; nickel-63; technetium-99.

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL May 1998). Appendices 1 through 6 provide the following information as indicated below:

- Appendix 1. Glossary of Data Reporting Qualifiers
- Appendix 2. Summary of Data Qualification
- Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
- Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
- Appendix 5. Data Validation Supporting Documentation
- Appendix 6. Additional Data Requested by Client

DATA QUALITY PARAMETERS

Holding Times

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for radiochemical analysis is 6 months.

All holding times were acceptable.

Preparation (Method) Blanks

Laboratory Blanks

Blank samples are analyzed to determine if positive results are due to laboratory reagent, sample container, or detector contamination. If blank analysis results indicate the presence of an analyte above the minimum detectable activity (MDA), the following qualifiers are applied: All positive sample results less than five times the highest blank concentration are qualified as estimates and flagged "J"; sample results below the MDA are qualified as undetected and flagged "U"; sample results above the MDA and greater than five times the highest blank concentration are not qualified.

All blank results were acceptable.

Field Blank

No field blanks were submitted with the SDG, therefore, no field blank data was present for review.

Accuracy

Accuracy is evaluated from laboratory control sample (LCS) or blank spike sample (BSS) batch samples and spiked samples from the analytical batch. Measured activities are compared to the known added amounts. The acceptable LCS or BSS and matrix spike (MS) recovery range is either 70-130% or ± 3 sigma. In addition, samples may be spiked with a radiochemical tracer to assist in isolating the radioisotope of interest with the yield of the tracer being used in calculating sample activity. The acceptable range for tracer recovery is 20% to 105%. Spike sample results outside the above ranges result in associated sample results being qualified as estimates, or not qualified, depending on the activity of the individual sample. Results are rejected for LCS/BSS recoveries of less than 30% or ± 3 sigma, tracer recoveries of less than 20%, and tracer recoveries of greater than 115% for detected results.

All accuracy results were acceptable.

Laboratory Duplicates

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the contract required detection limit (CRDL) and the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All duplicate results were acceptable.

Field Duplicate

One set of field duplicates (B101W9/B101X0) was submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

Detection Levels

Reported analytical detection levels for undetected analytes are compared against the 100 Area Remedial Action Sampling and Analysis Plan target detection limits (TDLs) to ensure that laboratory detection levels meet the required criteria. The following analytes were reported above their TDL: Uranium-235(alpha) and uranium-238(gea) in all samples; europium-155 in all samples; uranium-235(gea) in samples B101X4, B101X2, B101X1, B101W9 and B101W7; americium-241 in samples B101X4, B101X2, B101X1, B101W9, B101W7, europium-152 in sample B101X2; and europium-154 in samples B101X2, B101X1, B101W8, B101W7 and B101W9. Under the BHI statement of work, no qualification is required. All other reported laboratory MDAs were at or below the analyte-specific TDL or contract specified MDA.

Completeness

Data package No. H0988-TR (SDG No. H0988) was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

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MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

The following analytes were reported above their TDL: Uranium-235(aipha) and uranium-238(gea) in all samples; europium-155 in all samples; uranium-235(gea) in samples B101X4, B101X2, B101X1, B101W9 and B101W7; americium-241 in samples B101X4, B101X2, B101X1, B101W9, B101W7, europium-152 in sample B101X2; and europium-154 in samples B101X2, B101X1, B101W8, B101W7 and B101W9. Under the BHI statement of work, no qualification is required. All other reported laboratory MDAs were at or below the analyte-specific TDL or contract specified MDA.

REFERENCES

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

DOE/RL-96-22, Rev. 1, 100 Area Remedial Action Sampling and Analysis Plan, U.S. Department of Energy, May 1998.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the BHI statement of work are as follows:

- Indicates the compound or analyte was analyzed for and not detected above the minimum detectable activity (MDA) in the sample. The value reported is the sample result corrected for sample dilution and moisture content by the laboratory. The data is usable for decision making purposes.
- UJ Indicates the compound or analyte was analyzed for and not detected at concentrations above the minimum detectable activity (MDA) in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate, but is usable for decision making purposes.
- Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.
- R Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

Appendix 2
Summary of Data Qualification

DATA QUALIFICATION SUMMARY

SDG: H0988	REVIEWER: TLI	DATE: 11/21/00	PAGE_1_OF_1_					
COMMENTS: No qualifiers assigned.								
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON					

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

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Project: BECHTEL-HANFO	ND OF																			
Laboratory: TR																				
Case	8DG: H	10988								-										
Sample Number		B101W6		B101W7		B101W8		B101W9		B101X0		B101X1		B101X2		B101X3		B101X4]	
Remarks								<u> </u>		Duplicate									$_{-}$	
Sample Date		8/23/00		8/23/00		8/23/00		8/23/00		8/23/00		8/23/00		8/23/00		8/23/00		8/23/00		
Radiochemistry	TDL	Result	a	***		Result	<u>a</u>	Result	a	Result (<u>a</u>	Result	α	Regult	a	Result 0	2 1	Regult	۵	
Niokal-63		0.955	U	0.540	٥	-0.279	U	-0.080	U	0.744	U	0.595	۲	-0.694	Ų	1.04 U		0.390	U	
Strontium (total)	1	-0.074	U	-0.042	ح	-0.048	_	-0.015	U	0.006	U	-0.084	υ	-0.037	J	0.028 U	<u>. </u>	-0.027	U	
Technetium-99	<u> </u>	0.023	υ_	0.028	U	-0.090	υ	-0.154	IJ	-0.130	ע	0.178	U	-0.370	5	-0.130 U		0.081	U	
Uranium-233	0.1	0.466		0.363	L.,	0.328	L.	0.371		0.342		0.373	Щ	0.499		0.492	_	0.384		
Uranium-235	0.1	0	2	0	2	0.017	U_	0.017	U	0.038 L	<u>U</u>	0.017	b	0.050	۳	0.034 U	ᆜ	0.069	U	
Uranium-239	0.1	0.378	L	0.363		0.328	<u> </u>	0.357	匚	0.357		0.574		0.541		0.534		0.540		
Plutonium-238	0.1	0.005	υ	-0.003	U	0.003	U	-0.014	U	0.031 ใ	ŭ	0.005	υ	0.003	u	0.004 U	<u>. [</u>	0.007	U	
Plutorium-239/40	0.1	0.008	U	-0.003	٥	-0.003	U	-0.007	U	ા	U	0.008	٥	-0.006	U	ο υ		0.003	U	
Potessium-40	<u> </u>	14.4		14.5		15.5		11.4	<u> </u>	13.5		14.0		13.4		14.1	_	14.4		
Cobelt 60	0.05	U	บ	U	_		<u>u</u>		U	<u> </u>	_	U	ح	U	ŭ	บบ	4	U	<u>u</u>	
Cookun 137	0.05	U	<u>u</u>	<u> </u>	U	U	U_	<u> </u>	ט	υl	Ų_	0.069		0.121		0.067	_	0.102		
Radium-226	<u> </u>	0.401		0.492		0.422		0.387		0.414		0.491		0.529	_	0.480		0.536		 \Box
Radium-228		0.660	_	0.606	_	0.724		0.580	_	0.647	_	0.849		0.709		0.729	4	0.855	_4	 Щ
Europium 152	0.1	U		U	_		U		U	Ul	_		υ	U	_	บบ	_	U	_	
Europium 154	0.1	U		U	_		U.		ح	Ul	_	U	_	U	_	บบ	_	U		
Europium 155	9.05	U	ע	U	U_		U		U	UL	U.		U	U	U	υu	4		띡	
Thorium-228		0.594		0.567		0.587		0.619		0.521		0.720		0.735		0.655		0.665	_	
Thorium-232		0.660	_	0.606		0.724	L	0.580		0.647		0.849		0.709		0.729	_	0.855		_
Uranium-235 (GEA)	0.1	U	U	U	U	U	U		U	U	_	U	Ü	U	_	υU	<u> </u>	U	_	_
Uranium-238 (GEA)	0.1	U	U	U	_		U		U	υl	_	U		<u> </u>	_	บใบ	_	U		
Americken-241 (GEA)	0.1	U	U	U	U	U	U	U.	5	UL	ע	U	υ	U	U	uu		U	<u>u </u>	
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TMA/RICEMOND

OCT 31 '80 03:46PM BHI S&D MANAGEMENT 509 372 9487

SAMPLE DELIVERY GROUP HOSES

R008191-01

DATA SHERT

B101W6

· ·	7468 Meliaga C. Mannion	Client/Case no Contract	Hanford SDG HD988 TRC-SBB-207925
Lab sample id Dept sample id			100H-7 Overburden SQLID
	99.1	Custody/SAF No	08/23/00 08:30 B99-042-92 B99-042

AWALYTE	CAS NO	pci/g	20 ERR (COUNT)	MDA pCi/g	RDL pci/g	QUALI- FIERS	TEST
Nickel 63	13981-37-6	0.955	1.4	2.4	30	σ	NI_L
Total Strontium	SR-RAD	-0.074	0.12	0.17	1.0	ט	er_
Technotium 99	14133-76-7	0.023	0.16	0.44	20	U	TC
Uranium 233	U-233/234	0.466	0.18	0.14 :	1.0	J	U
Uranium 235	15117-96-1	0	0.043	0.17 '	1.0	υ	U
Uranium 238	U-238	0.376	0.15	0.14	1.0	J	U
Plutonium 238	13961-16-3	0.005	0.021	0.037	1.0	σ	₽Ū
Plutonium 239/240	PU-239/240	0.008	0.010	0.020	1.0	U	PÜ
Potassium 40	13966-00-2	14.4	0.57	0.20			GAM
Cobalt 60	10198-40-0	u		0.027	0.050	σ	GAM
Cesium 137	10045-97-3	ט		0.025.	0.10	ប	GAM
Radium 226	13982-63-3	0.401	0.050	0.049	0.10		gan
Radium 228	15262-20-1	0.660	0,10	0.097.	0.20		GAM
Buropium 152	14683-23-9	U		0.062	0.10	ਹ	GAM
Europium 154	15585-10-1	U		0.087 [,]	0.10	ס	GAM
Europium 155	14391-16-3	σ		0.066	0.10	บ	GAM
Thorium 228	14274~82 - 9	0.594	0.030	0.028			GAM
Thorium 232	TH-232	0.660	0.10	0.097			GAM
Uranium 235	15117-96-1	Ū	- 	0.10 :		Ţ	gan
Uranium 238	U-236	U		2.9		Ū	gam
Americium 241	14596-10-2	ט		0.077		T	GAM

100 H Area - Full Protocol

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TMA/RICHMOND SAMPLE DELIVERY GROUP HOSES

R008191-02

DATA SHERT

B101W7

I.	7468 Molissa C. Mannion	Client/Case no Contract	Hanford SDG F TRC-SBB-207925	0288
		Collected		or m

analite	CVS NO	RESULT pci/g	24 EER (COUNT)	MDA pci/g	RDL pCi/g	QUALI- FIERS	TEST
Nickel 63	13961-27-8	0.540	1.4	2.3	30	_U	NI_L
Total Strontium	SR-RAD	-0.042	0.11	0.16	1.0	ਧ	\$R
Technotium 99	14133-76-7	0.026	0.15	0.41	20	σ	TC
Uranium 233	U-233/234	0.363	0.19	0.18 '	1.0	J	Ţ
Uranium 235	15117-96-1	0	0.046	0.18	1.0	U	U
Uranium 238	U-238	0.363	0.16	0.15	1.0	J	Ū,
Plutonium 238	13981-16-3	-0.003	0.017	0.040	1.0	ช	PU
Plutonium 239/240	PU-239/240	-0.003	0.011	0.030	1.0	Ū	PÜ
Potassium 40	13966-00-2	14.5	0.78	0,37			Gam
Cobalt 60	10198-40-0	U		0.034	0.050	σ	GAM
Cesium 137	10045-97-3	U		0.032	0.10	U	MAĐ
Radium 226	13982-63-3	0.492	0.055	0.049	0.10		GAM
Radium 228	15262-20-1	0.606	0.15	0.15	0.20		GAM
Europium 152	14663-23-9	Ū		0.078	0.10	Ŭ	GAM
Europium 154	15585-10-1	σ		0.11	0.10	Ū	GAM
Buropium 155	14391-16-3	ช		0.098	0.10	Ū	GAM
Thorium 228	14274-82-9	0.367	0.042	0.043			CAM
Thorium 232	TH-232	0.606	0.15	0.15			GAM
Uranium 235	15117-96-1	T		0.14		ט	GNH
Uranium 238	U-238	U		3.9		Ū	GNH
Americium 241	14596-10-2	ซ		0.26		₫ .	GAM

100 H Area - Pull Protocol

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TMA/RICHMOND SAMPLE DELIVERY GROUP ROSSS

R006191-03

DATA SHERT

3101W8

7468 Melissa C. Mannion	Client/Case no Contract	Hanford SDG H0988 TRC-SDB-207925
		100H-7 Overburden SOLID 08/23/00 b9:04

analyte	CAS NO	RESULT pci/g	2e ERE (COUNT)	bct\& MDY	RDL pCi/g	QUALI- PIERS	Test
Nickel 63	13981-37-8	-0.279	1.4	2.4	30	U	NI_L
Total Strontium	SR-RAD	-0.046	0.13	0.17	1.0	ם	SR
Technetium 99	14133-76-7	-0.090	0.18	0.45	26	Œ	TC
Uranium 233	U-233/234	0.328	0.14	0.10	1.0	J	U
Uranium 235	15117-96-1	0.017	0.033	0.13	1.0	τ	Ū
Uranium 238	V-238	0.328	0.14	0.10	1.0	J	ד
Plutonium 239	13981-16-3	0.003	0.017	0.031	1.0	U	PÜ
Plutonium 239/240	PU-239/240	-0.003	0.006	0.022	1.0	ט	PU
Potassium 40	13966-00-2	15.5	0.87	0.31 .			MAD
Cobalt 60	10198-40-0	บ		0.031	0.050	U	MAD
Cesium 137	10045-97-3	U		0.030	0.10	U	CAM
Radium 226	13982-63-3	0.422	0.058	0.057	0.10		GAM
Radium 228	15262-20-1	0.724	0.12	0.13;	0.20		GAM
Europium 152	14683-23-9	ซ		0.071	0.10	U	GMM
Europium 154	15565-10-1	IJ		0.12	6.10	Ü	GAM
Europium 155	14391-16-3	σ		0.063	0.10	ช	GAM
Thorium 228	14274-82-9	0.587	0.036	0.032			GAM
Thorium 232	TH-232	0.724	0.12	0.12			GAM
Uranium 235	15117-96-1	บ		0.10		U	GAM
Uranium 238	U-238	ט		3.9		Ŭ	GAM
Americium 241	14596-10-2	Ü		0.042		ਧ	GAM

100 H Area - Pull Protocol

11/2400

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SAMPLE DELIVERY GROUP HO988

R008191-04

DATA SHEET

B101W9

	7468	Client/Case no	Eanford SDG H0988
	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id Dept sample id Received t solids	7468-004 08/25/00	Collected	B101W9 100H-7 Overburden SOLID 08/23/00 09:19 B99-042-92 B99-042

ANALYTE	CAS NO	result pci/g	25 ERR (COURT)	MDA pci/g	RDI. pCi/g	QUALI- FIERS	TEST
Nickel 63	13961-37-8	-0.080	1.4	2.4 ;	30	Ü	NI_L
Total Strontium	SR-RAD	-0.015	0.12	0.17	1.0	υ	SR
Technotium 99	14133-76-7	-0.154	0.15	0.48	20	ט	TC
Uranium 233	U-233/234	0.371	0.15	0.11	1.0	J	U
Uranium 235	15117-96-1	0.017	0.035	0.13	1.0	U	U
Uranium 236	U-238	0.357	0.15	0.11	1.0	J	U
Plutonium 236	13981-16-3	-0.014	0.027	0.060	1.0	U	PU
Plutonium 239/240	PU-239/240	-0.007	0.020	0.045	1.0	U	PU
Potassium 40	13966-00-2	11.4	0.91	0.50 ,			GAM
Cobalt 60	10198-40-0	ប		0.042	0.050	ט	GAM
Cesium 137	10045-97-3	ס		0.040ı	0.10	U	GAM
Radium 226	13982-63-3	0.387	0.085	0.086	0.10		MAD
Radium 228	15262-20-1	0.380	0.14	0.15	0.20		GAM
Buropium 152	14683-23-9	ซ		0.10	0.10	U	GAM
Europium 154	15585-10-1	U		0.15	0.10	ਹ	GAM
Europium 155	14391-16-3	Ū		0.10	0.10	U	GAM
Thorium 228	14274-82-9	0.619	0.072	0.071			GAM
Thorium 232	TH-232	0.580	0.14	0.15			MAD
Uranium 235	15117-96-1	ซ		0.16 ;		ש	GAN
Uranium 238	Ų-238	7		5.5		U	gam
Americium 241	14596-10-2	ŭ		0.15		U	GAM

100 H Area - Full Protocol

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TMA/RICHMOND SAMPLE DELIVERY GROUP MO988

R008191-05

DATA SHEET

BIOIXO

7468 Mclissa C. Mannion	Client/Case no Contract	Hanford SpG HO	880
		100H-7 Overburden S0 06/23/00 09:19	TID

AMALYTE	CAS NO	RESULT pci/g	2s ERR (COUNT)	NDA pci/g	RDL pCi/g	QUALI- FIERS	TEST
Nickel 63	13981-37-8	0.744	1.4	2.3	30	Ū	NIL
Total Strontium	SR-RAD	0.005	0.12	0.16	1.0	σ	SR
Technetium 99	14133-76+7	-0.130	0.26	0.62	20	ס	TC
Uranium 233	U-233/234	0.342	0.16	0.12	1.0	J	Ū
Uranium 235	1\$117-96-1	0.038	0.038	0.14	1.0	u	Ū
Uranium 238	U-238	0.357	0.16	0.12 ;	1.0	J	U
Plutonium 238	13981-16-3	0.031	0.050	0.084	1.0	ਹ	PU
Plutonium 239/240	PU-239/240	0	0.019	0.038	1.0	U	₽Ü
Potassium 40	13966-00-2	13.5	0.57	0.23			gam
Cobalt 60	10198-40-0	U		0.027	0.050	U	GAM
Cesium 137	10045-97-3	υ		0.038	0.10	Ū	GAM
Radium 226	13982-63-3	0,414	0.046	0.045	0.10		GAM
Radium 226	15262-20-1	0.647	0.11	0.11	0.20		GAM
Europium 152	14683-23-9	U		0.060	0.10	U	MAD
Europium 154	15565-10-1	Ü		0.092	0.10	U	gam
Europium 155	14391-16-3	σ		0.062	0.10	Ŭ	GAM
Thorium 228	14274-92-9	0.521	0.029	0.026			gam
Thorium 232	TH-232	0.647	0.11	0.11			MAD
Uranium 235	15117-96-1	Ü		0.10		ט	GAN
Uranium 238	U-238	σ		2.5		U	Gam
Americium 241	14596-10-3	υ		0.076		ט	GAM

100 H Area - Full Protocol

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Lab id TMANC Protocol Hanford Version Ver 1.0 FORM DVD-DS Version 3.06 Report date <u>09/23/00</u>

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P.13/46

TMA/RICHMOND SAMPLE DELIVERY GROUP ROSSE

R008191-06

DATA SHEET

B101X1

7468 Melissa C. Mannion	Client/Case no Contract	Hanford s TRC-SBB-207925	DG 190988
	Collected	B101X1 100H-7 Overburden 08/23/00 b9:45 B99-042-92 B99-04	SOLID 2

YKYTÄLE	CAS NO	RESULT PCi/g	2σ ERR (COURT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Nickel 63	13981-37-8	0.595	1,5	2.5	30	ט	NI_L
Total Strontium	SR-RAD	-0.084	0.11	0.16 [;]	1.0	U	SR
Technetium 99	14133-76-7	0.178	0.27	0.71	20	ซ	TC
Uranium 233	U-233/234	0.373	0.15	0.11	1.0	J	U
Uranium 235	15117-96-1	0.017	0.035	0.13	1.0	U	U
Uranium 238	V-238	0.574	0.18	0.11	1.0	J	ט
Plutonium 238	13981-16-3	0.005	0.016	0.029	1.0	U	ΡÜ
Plutonium 239/240	PU-239/240	0.008	0.016	0.025	1.0	U	₽Ŭ
Potassium 40	13966-00-2	14.0	0.78	0.41			GAM
Cobalt 60	10198-40-0	ซ		0.037	0.050	ד	CAM
Cosium 137	10045-97-3	0.069	0.036	0.040	0.10	J	GAM
Radium 226	13982-63-3	0.491	0.067	0.064	0.10		GAM
Radium 228	15262-20-1	0.849	0.15	0.16	0.20		GNH
Europium 152	14683-23-9	U		0.094	0.10	מ	MAD
Europium 154	15585-10-1	Ū		0.11	0.10	ט	CAN
Europium 155	14391-16-3	Ū		0.11	0.10	U	GAM
Thorium 228	14274-82-9	0.720	0.046	0.045		-	GAM
Thorium 232	TH-232	0.849	0.18	0.16			GAM
Uranium 235	15117-96-1	Ū		0.15		U	GAM
Uranium 238	U-238	Ŭ		4.2		Ū	GAM
Americium 241	14596-10-2	Ū		0.28		ם י	GAM

100 H Area - Full Protocol

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Lab id TMARC
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 2.06
Report date 09/23/00

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TMA/RICHMOND SAMPLE DELIVERY GROUP HOSS

R009191-07

DATA SHERT

B10172

L.	7468 Melissa C. Mannion	Client/Case no Contract	Esnford TRC-SBB-207925	SDG_H0988
Lab sample id Dapt sample id Received % solids	7468-007 08/25/00		100m-7 Overburden 08/23/00 10:05	SOLID_

AWALYTE	CAS NO	RESULT pCi/g	26 ERR (COUNT)	MDA MDA	RDL pci/g	QUALI- FIERS	TEST
Mickel 63	13981-37-0	-0.694	1.4	2.4	30	ט	NI_L
Total Strontium	SR-RAD	-0.037	0.13	0.17	1.0	ប	STR.
Technetium 99	14133-76-7	-0.370	0.56	0.52	20	υ	TC
Uranium 233	U-233/234	0.499	0.17	0.11	1.0	J .	ט
Oranium 235	15117-96-1	0.050	0.067	0.13	1.0	ซ	ប
Uranium 238	U-238	0.541	0.17	0.11	1.0	J	U
Plutonium 238	13981-16-3	0.003	0.012	0.034	1.0	U	PΩ
Plutonium 239/240	PU-239/240	-0.006	0.006	0.030	1.0	ซ	PU
Potassium 40	13966-00-2	13.4	0.87	0.47			GAM
Cobalt 60	10198-40-0	U		0.044	0.050	ซ	GAM
Cesium 137	3.0045-97-3	0.121	0.042	0.044	0.10		MAD
Radium 226	13982-63-3	0.529	0.084	0.082	0.10		GAM
Radium 328	15262-20-1	0.799	0.17	0-17 ⁱ	0.20		MAD
Europium 152	14683-23-9	Ū		0.11	0.10	U	GAM
Europium 154	15585-10-1	U		0.14	0.10	U	CIAM
Buropium 155	14391-16-3	Ţ		0.10	0.10	ซ	GAM
Thorium 228	14274-82-9	0.735	0.051	0.052			GAM
Thorium 232	TH-232	0.709	0.17	0.17			GAM
Uranium 235	15117-96-1	. σ		0.16		ס	GAM
Uranium 238	U-238	ט		5.4		U	GIM
Americium 241	14596-10-2	Ţ		0.16		U	GAM

100 H Area - Full Protocol

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TMA/RICHMOND SAMPLE DELIVERY GROUP HOSES

R008191-08

DATA STEET

B101X3

	7468	Client/Case no	Banford 5DC H0988
	Melissa C. Mannion	Contract	TRC-SBB-207925
h .			100H-7 Overburden SOLID 08/23/00 10:22

ANALYTE	CAS NO	RESULT pci/g	20 EFR (COUNT)	MDA pCi/g	RDL pci/g	QUALI- FIERS	TEST
Nickel 63	13981-37-6	1.04	3.4	2.4	30	ט	MI_L
Total Strontium	SR-RAD	0.028	0.13	0.17	1.0	ប	BR
Technotium 99	14133-76-7	-0.130	0.21	0.62	20	U	TC
Uranium 233	U-233/234	0.492	0.17	0.11	1.0	J	T -
Uranium 235	15117-96-1	0.034	0.034	0.13	1.0	ប	U
Uranium 236	U-238	0.534	0.17	0.11	1.0	J	σ
Plutonium 238	13981-16-3	0.004	0.007	0.027	- 1.0	ד	PU
Plutonium 239/240	PU-239/240	0	0.007	0.027	1.0	ਹ	₽Ū
Potassium 40	13966-00-2	14.1	0.53	0.19			MAĐ
Cobalt 60	10198-40-0	Ŭ		0.025	0.050	U	GAM
Cesium 137	10045-97-3	0.057	0.025	0.036	0.10	J	GAM
Radium 226	13982-63-3	0.460	0,051	0.048	0.10		GAM
Radium 228	15262-20-1	0.729	0.10	0.099	0.20		GAM
Europium 152	14683-23-9	U		0.062	0.10	ט	GAM
Buropium 154	15585-10-1	ซ		0.086	0.10	ד	GAM
Europium 155	14391-16-3	Ū		0.063	0.10	ぜ	GAM
Thorium 228	14274-82-9	0.655	0.030	0.028			GAM
Thorium 232	TH-232	0.729	0.10	0.099			MAD
Uranium 235	15117-96-1	σ		0.097		ש	GAM
Uranium 238	U-238	Ū		3.0		U	GAN
Americium 241	14596-10-2	U		0.075		ਧ	GAM

100 H Area - Full Protocol

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TMA/RICEMOND SAMPLE DELIVERY GROUP MOSSS

R008191-09

DATA SEEET

B101X4

7468 Meliesa C. Mannion	Client/Case no Contract	Hanford TRC-888-207925	SDG HO988
		100H-7 Overburden 08/23/00 10:48	SOLID

AHALITE	CAS NO	result pci/g	26 ERR (COURT)	MDA pCi/g	RDL pci/g	QUALI- FIERS	TEST
Nickel 63	13981-37-8	0.390	1.4	2.4	30	U	NI L
Total Strontium	SR-RAD	-0.027	0.14	0.18	1.0	Þ	SŘ.
Technetium 99	14133-76-7	0.001	0.35	0.65	20	σ	TÇ
Uranium 233	U-233/234	0.384	0.15	0.11	1.0	J	υ
Uranium 235	15117-96-1	0.069	0.069	0.13	1.0	ט	U
Uranium 239	U-238	0.540	0.18	0,11	1.0	J	ŭ
Plutonium 238	13981-16-3	0.007	0.007	0.025	1.0	v	PU
Plutonium 239/240	PU-239/240	0.003	0.013	0.032	1.0	U	PU
Potassium 40	13966-00-2	14.4	0.69	0.29			GAM
Cobalt 60	10198-40-0	Ū		0.033	0.050	U	GAM
Cesium 137	10045-97-3	0.102	0.033	0.036	0.10		CAM
Radium 226	13982-63-3	0.536	0.064	0.063	0.10		GAM
Radium 228	15262-20-1	0.055	0.16	0.14	0.20		GAN
Buropium 152	14683-23-9	τ		0.084 i	0.16	ש	MAD
Europium 154	15585-10 - 1	Ū		0.10	0.10	U	GAM
Europium 155	14391-16-3	U		0.10. 1	0.10	ਧ	ÇAN
Thorium 228	14274-82-9	0.665	0.041	0.041			GAM
Thorium 232	TH-232	0.855	0.16	0.14			GAM
Uranium 235	15117-96-1	σ		0.14	•	U	GAM
Uranium 238	T-238	•		3.9		ช	GAM
Americium 241	14596-10-2	ט		0.24		τ	GAM

100 H Area - Full Protocol

11/20/00

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Version 3.06
Report date 09/23/00

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

ThermoRetec Nuclear Services 2050 Wright Avenue P.O. Box 4040 Richmond, CA 94804



(800) \$41-5487 Phone (510) 235-2633 Phone (510) 235-0438 Fax www.themnoretec.com

September 25, 2000

Ms. Joan Kessner Bechtel Hanford Inc. 3190 George Washington Way Richland, WA 99352 MSIN: H9-03

Reference:

P.O. #TRC-SBB-207925

Thermo Retec R0-08-191-7468, SDG H0988

Dear Ms. Kessner:

Enclosed is the data report for nine solid samples designated under SAF No. 899-042 received at Thermo Retec on August 25, 2000. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely.

Melissa C. Mannion

Milesa Mammion

Program Manager

MCM/sm

Enclosure: Data Peckage



A subsidiary of Thermo TerraTuck Inc., Thermo Électron company

Collector Consequence Conseq	Becktel Hanfi	ord Inc.		hain of cus	TODY/S.	AMPLE	ANALY	ysis i	REQUEST	r i	B9	9-042-92	Pega	of 3
Support Variety Support Va								1	rojest Coordi ILENT, SI	salor	Price Code	8L		
Shapped To MARDERA MAN Control Property No. Control Property No.	Project Designation 100 H Ares - Full Protocol		100	ling Location 11-7 Overborden	HO 982	8 (74	68				Air Quality	7 🗀	. 211	Days
POSSTBLE BARRETLE BAZARTES/REMARKS Pressyretion Man Pressyretion Type of Continues Pressyretion Type of Continues Type o	ire Chesi No.			Legheck Na. -1580-3			- 	•	dethod of Ship Federal Expr					
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POLICES KNOWLEGGE 10d (Light) Ple of Consistency (Section 10d (Light) Special Fluoriting another Storage Volume Sample No. March Sergio Date Sample No. March Sergi			#			٠.	Coal 4C) (0-40)	//	24				
Special Flandling analyse Storage Valuate Sharpin Flandling analyse Storage Sample Flandling Storage Sample Fl	Drivers Kin	ovoledae inc		Type of Container	29	10	0/3	-G/	6	}	1		 	
Sample No. Meeting Sorreling Date Sample Time. Sample No. Meeting Soul Soul Soul Soul Soul Soul Soul Soul	PLB Content	< 2080w		No. of Container(s)			1/5	7,3	N /n					
Steepla No. Metrics Surgic Date Semplo Tires Steepla No. Metrics Surgic Date Surgic Date Semplo Tires Steepla No. Metrics Surgic Date Su	Special Flandling nudfor St	orege		Volume	68mL	dûml.	129-03	73	13/13	300mE				
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BY SOR - 03 - 25 - 20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Sample No.	Matrix *	Sample Date	Sumple Time	15.2			4.1	W 7 1 1 1 7 1					
BEOTIME SOR ON	B101W6	SOIL ~	08-23-0	30 083Q	1 X/							<u> </u>	ROX	K.B
BYONNO SOR. OR SENTENCE NOW SOR. OR SENTENCE NOW SECURITY SOUTH NAME OF THE SENTENCE NOW SENTENC			(X) -552-(<u> </u>								 		 -
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Described by De	*				X				<u>-</u>				┸	Maria
Received by Date/Time / Received by Date/Heds: LABORATCERY Received By Time Date/Team SECTION	many grad	Rof 13 8 341	K.T.	CV 03	ACTION OF THE PROPERTY OF THE	tope (i)	implers set to a in is collected. Am-241 or Tota cively. CP Mosels - 601-	MA (Support Cost)	Millionies for 1Cl question, consistent tones) (Austric, C into-157, Cobelle-	velok i ko Pi Desaminan,	Hun'U-isa ami i Land); Mercury	CP Helak ens -1476 -(CV)	hynes. un-155)	S-Enil Sp-Sellen S-Gleige W-Wiger Cr-OR P3-Dynn S Ty-Dynn S Ty-Dyn
	Residence by LABORATORY Received	Described	<u> </u>	S. F. E. B	er/25 Sad Beds		<u> </u>	L9/2	7/08	<u> </u>		 i	Date/Time	
		Method					Dispos	ad By				· · · · · · · · · · · · · · · · · · ·	Duto/Time	

BHI-EE-011 (10/99)

Appendix 5

Data Validation Supporting Documentation

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	В	(c)	D	E
PROJECT:	OH 116-H-	· 7	DATA PACKAGE	: H0984	
VALIDATOR:		LAB: TR		DATE: 11/2	,00
CASE:			SDG:	40988	
		ANALYSES	PERFORMED		, ,
☐ Gross Alphe/Bets	'S[Strontium-90	Ø√Technetium-99	VI Alpha Spectroscopy	Spectroscopy	
☐ Total Uranium	☐ Redium-22	☐ Tritium	#M1-63		
SAMPLES/MATE	IIX BIOIW	4 Riolwa	Biolur	Blown	
	1310176		BIOIXZ	BIOIN 3	
	Biolxy		- Barrier	Part of	
					Soil
1. Completen	۵۹۹			· · ·	X N/A
_			• • • • •		/ ``
Technical ver	ification for	ms present? .	• • • • •	Yes	i No ^l N/A
Comments:					
		· · - · · · · · ·			
				<u></u>	
			• • • • • • • • • • • • • • • • • • • •		
2. Initial C	alibration .				N/A
			• • • • • •	• • • • • •	
instruments/d	etectors call or of sample a	brated within	1 	Yes	s No N/A
				Yes	•
Standards NIS	T traceable?			Ye:	•
Standards Exp	ired?	• • • • • •		Ye	s No N/A
Comments:					
		<u></u>			
·	<u> </u>				
			/		

A-16

3. Continuing Calibration	. DANA
Calibration checked within one week of sample analysis? Yes	No N/A
Calibration check acceptable? Yes	No N/A
Calibration check standards NIST traceable? Yes	No N/A
Calibration check standards expired? Yes	No N/A
Comments:	
4. Blanks	- 🗆 N/A
Method blank analyzed?	No N/A
Method blank results acceptable? Yes	No N/A
Analytes detected in method blank? Yes	No N/A
Field blank(s) analyzed? Yes	NA GI
Field blank results acceptable? Yes	No (N/A
Analytes detected in field blank(s)? Yes	No (N)
Transcription/Calculation Errors? Yes	No NA
Comments: NO Field black no analytes in Mis	<u> </u>
5. Matrix Spikes	. Jan/A
Matrix spike analyzed? Yes	No N/A
Spike recoveries acceptable? Yes	No N/A
Spike source traceable? Yes	No N/A
Spike source expired? Yes	No N/A
Transcription/Calculation Errors? Yes	No N/A
Comments:	
•	
	·

6. Laboratory Control Samples	. □ N/A
LCS analyzed?	No N/A
LCS recoveries acceptable?	No N/A
LCS traceable? Yes	No (N)A
Transcription/Calculation Errors? Yes	No N/A
Comments:	
7. Chemical Recovery	. 🗆 N/A
Chemical carrier added? Yes	No N/A
Chemical recovery acceptable?	No N/A
Chemical carrier traceable? Yes	No (NZA
Chemical carrier expired? Yes	No NA
Transcription/Calculation errors? Yes	No (N/A)
Comments:	
8. Duplicates	. □ N/A
Duplicates Analyzed? (es)	No N/A
RPD Values Acceptable? Yes	No N/A
Transcription/Calculation Errors? Yes	No N/A
Comments:	
	

9. Field QC Samples
Field duplicate sample(s) analyzed? Yes No N/ Field duplicate RPD values acceptable? Yes No N/ Field split sample(s) analyzed? Yes No N/ Field split RPD values acceptable?
10. Holding Times Are sample holding times acceptable?
Comments:
11. Results and Detection Limits (Levels D & E)
Results reported for all required sample analyses? Yes No N/
Results supported in raw data? Yes No
Results Acceptable?
Transcription/Calculation errors? Yes No (N)
MDA's meet required detection limits? Yes (No) N
Transcription/calculation errors? Yes No (N/
Comments: MA - See naviatur

Appendix 6

Additional Documentation Requested by Client

P.5/46

TMA/RICHMOND SAMPLE DELIVERY GROUP MOSSS

R008191-11

METHOD BLANK

Method Blank

	7468 Melissa C. Mannion	Client/Case no Contract	Hanford TRC-SAB-207925	SDG HO988
Lab sample id Dept sample id		Client sample id Material/Matrix SAF No		SOLID

AHALYTE	CAS NO	result pci/g	26 ERR (COUNT)	MDA pCi/g	MDF pC1/g	QUALI- FIERS	Test
Nickel 63	13981-37-8	0.319	1.3	2.2	30	מ	NI_L
Total Strontium	SR-RĀD	-0.059	0.11	0.15	1.0	Ū	sr T
Technetium 99	14133-76-7	-0.100	0.14	0.43	20	T	TC
Uranium 233	U-233/234	0.015	0.015	0.024	1.0	Ū	U
Uranium 235	15117-96-1	0.00 <i>5</i>	0.012	0.024	1.0	Ŭ	U
Vranium 238	U-238	-0.003	0.005	0.019.	1.0	ប	U
Plutonium 238	13981-16-3	0,017	0.020	0.033	1.0	ם	PU
Plutonium 239/240	PU-239/240	0.002	0.010	0.024	1.0	ប	PU
Potassium 40	13966-00-2	ਹ		0.092		ช	GAM
Cobalt 60	10198-40-0	σ		0.009	0.050	Ū	MAD
Cesium 137	10045-97-3	Ū		0.010	0.10	Ū	MAD
Radium 226	13962-63-3	U		0.024	0.10	<u>a</u>	GAM
Radium 226	15262-20-1	ד		0.034	0.20	₫ .	GAM
Buropium 152	14683-23-9	ਹ	•	0.021	0.10	σ	GAM
Buropium 154	15585-10-1	Ū		0.027	0.10	U	GAM
Europium 155	14391-16-3	ਰ		0.018	0.10	σ	GAM
Thorium 228	14274-82-9	σ		0.013		ซ	GAM
Thorium 232	TH-232	U		0.034		ט	GAM
Uranium 235	15117-96-1	Ū		0.025		Ū	gam
Uranium 238	U-238	Ū		0.91		σ	GAN
Americium 241	14596-10-2	σ		0.025		ד	GAM

100 H Area - Full Protocol

QC-BLANK 3565S

METHOD BLANKS
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Version 3.06
Report date 09/23/00

OCT 31 '00 03:45PM BHI S&D MANAGEMENT 509 372 9487

THA/RICEMOND

R006191-10

LAS CONTROL SAMPLE

P.6/46

Date Control Sample

Lob sample id 8008191-10 Dept sample id 7468-010 SDG 7458 Contact Maliasa C. Namaion Cliant sample id inh Control Sample Macerial/Matrix Client/Case no Nantord Case no TEC-589-207925 50.F No 341-142 118 COL 2015 ECT.TO

ABALKTE	PCH/S	24 EER (COCHT)	8/13d	ACT./A	PERSONAL -	1867	ACT/A	24 800 pc1/9	19C	(TREBOL)	ELIBERT DOOLONG
Mickel 61	14.	3.5	2.42	ğ		Ä	346	6.8	2	M-126	\$0-120
Total Strontium	13.1	0.99	0.21	1.0		#	11.2	0.49	100	811-28	80-120
Tachmetium 99	54.7	1.9	0.72	20		ま	\$6.7 .	2.3	ž	941-P8	80-110
Uranium 233	9, 92	<u>.</u>	o.	ŗ		٩	9.86	0.19	48	78-123	10-17Q
Desnium 115	7.77	1.2	0.20	1.0		₫	7.11	14.0	¥	75-125	10-130
Uzonium 218	10.1	<u>.</u>	0.62	 0		4	10.5	0.42	9.6	76-122	10-120
fluconium 218	, o.	0.57	0.031	1.0		8	11.2	o.	3	88-112	\$0-130
Fluconium 239/240	3.46	19.0	0,036	1.0		8	11.9	0.4	96	\$41-3B	60-120
Cobalt 60	0.33	0.047	0.027	0.050		Ę	0.326	0.013	204	££1.32	10-120
Chadum 137	0.410	0.040	0.026	0.10		불	0.371	0.015	113	69-131	057-01

100 H Area - Full Frotocol

3598E 803-00

Tab id 19985

Proceed Barfask

Version 1871-168

Parm DVD-168

Version 1.96

Report docs 18/31/89

TAB CONTROL GRADUES

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BORGARY DARK ABCTION

Fage 10

238944

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TMA/RICEMOND SOUTH DELIVERY GROUP HUSES

R000191-12

DUPLICATE

B101W6

EDG 7458 Client/Case no Borford ADG KOSES Contact Maliana C. Machion Caso ma TRC-883-207925 DUBLICATE CRITICIAL. Lab sample id RODA181-12 Lab sample id RODELEL-01 Client sample id 210194 Dept ###pls id 7468-012 Dept sample 1d 7468-001 Location/Macrix 1008-7 Overburden *OLID Collected 04/22/00 08:30 Received 08/25/00 t onlide _33.1___ Onetody/EAF No <u>899-042-92</u> <u>889-042</u> * #01ids _99.1

ANALYTE	Durliche PCI/g	2# ERS. (COURT)	pÇi/g	211L pCi/g	CUALI- FIERS	TRAT	DGI/Q DGI/Q	COUNTY	MOA pci/g	CUALI-	RIP 4	TOT	LIMIT
Rickel 62	2.91	1.5	2.4	20	J	BI_L	0.955	1.4	2.4	ט	101	161	
Total Struction	-0.019	0.056	0.13	1.5	σ	5 3	-0.976	0.42	6.17	σ	-		
Tecametium 99	0.037	0.16	0.50	20	U	TC	0.023	9.16	0.44	a	•		
Ursaium 233	0.308	0.17	0.20	1.0	J	ט	0.466	0.18	9.14	J	41	97	
Gracium 235	ā	4.050	C.IS	1.0	U	"	٥	0.043	0.17	U	-		
Greatum 238	0.554	0.21	0.16	1.0	J	u	0.376	0.20	0.14	J	38	90	
Plucanium 238	-0.003	0.007	0.025	1,0	U	90	0.005	0.021	0.037	U	-		
Pluconium 235/240	\$.007	0.007	0.025	1.0	T T	PU	0.806	0.010	0.020	ד	-		
Potassium 40	15.5	0.73	0.21			COM	14.4	0.57	0.20		7	33	
Cobalt 60	ש		0.026	0.050	U	GNK	ū		0.027	Ü	-		
Cosium 137	u		0.025	0.16	a	ФH.	U	,	0.025	U	•		
Radium 226	9.516	0.057	0.054	0.10		ann	0.401	0.050	0.049		25	41	
Radium 276	0.710	0.13	0.13	0.20		GMM	0.640	0.10	0.497		7	42	
Buzopium 162	ט		0.065	0.10	ซ	ŒN	ŭ		0.062	℧.	•		
Buropium 154	v		0.089	0.20	a	CDM.	ט	:	0,087	U	-		
Buropius 155	U		0.085	0.10	ס	CAN	ū	1	0.056	Œ	-		
Thorium 228	0.638	0.034	0.023			CIM	0.594	0.030	0.026		7	34	
Thorium 232	0.710	0.13	0.13			CHO	0.660	0.10	9.097		7	41	
Dranium 235	v		0.093		Ð	CAME	0		0.10	U	•		
Uranium 236	σ		3.3		U	аж		;	2.*	0	-		
Americium 241	σ		0.036		0	МКО	ט		0.877	U	-		

100 H Arms - Full Protocol

QC-DUP#1 35656

Page 1

Page 1

Page 11

Protocol Henford
Version Vrs 1.0
Form PVD-DUP
Version 3.04
Report date 05/23/00

Date: 21 November 2000

To: Bechtel Hanford Inc. (technical representative)

From: TechLaw, Inc.

Project: 100H Areas - Full Protocol - Waste Site 116-H-7 Overburden

Subject: PCB - Data Package No. H0988-RLN (SDG No. H0988)

INTRODUCTION

This memo presents the results of data validation on Summary Data Package No. H0988-RLN prepared by Recra LabNet (RLN). A list of the samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Madia	Validation	Analysis
B101W6	8/23/00	Soil	С	PCBs by 8082
B101W7	8/23/00	Soil	C	PCBs by 8082
B101W8	8/23/00	Soil	С	PCBs by 8082
B101W9	8/23/00	Soil	С	PCBs by 8082
B101X0	8/23/00	Soil	С	PCBs by 8082
B101X1	8/23/00	Soil	С	PCBs by 8082
B101X2	8/23/00	Soil	С	PCBs by 8082
B101X3	8/23/00	Soil	С	PCBs by 8082
B101X4	8/23/00	Soil	С	PCBs by 8082

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, May 1998). Appendices 1 through 6 provide the following information as indicated below:

- Appendix 1. Glossary of Data Reporting Qualifiers
- Appendix 2. Summary of Data Qualification
- Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
- Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
- Appendix 5. Data Validation Supporting Documentation
- Appendix 6. Additional Documentation Requested by Client

DATA QUALITY PARAMETERS

Holding Times

Sample data were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be extracted within 14 days of the date of sample collection and analyzed within 40 days from the date of extraction.

If holding times are exceeded by less than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-detects. If holding times are exceeded by greater than two times the limit, all associated detected sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

All holding times were acceptable.

Method Blank

Method blank analyses are performed to determine the extent of laboratory contamination introduced through sampling, sample preparation or analysis. At least one method blank analysis must be conducted for every 20 samples. Method blanks should not contain target compounds at a concentration greater than target detection limit (TDL). If target compounds are present, sample results less than five times the blank concentration are qualified as undetected and flagged "U". If the sample result is less than five times the blank concentration and less than TDL, the result is qualified as undetected and elevated to the TDL.

All method blank target compound results were acceptable.

Field Blanks

No field blanks were submitted for analysis, therefore, no field blank data was available for review.

Accuracy

Matrix Spike

Matrix spike analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations. Matrix spike analyses are performed in duplicate and must be within control limits of 70% to 130%. If spike recoveries are outside control limits, detected

sample results less than five times the spike concentration are qualified as estimates and flagged "J". Non-detected sample results with spike recoveries outside control limits are qualified as estimates and flagged "UJ". Sample results greater than five times the spike concentration require no qualification.

Due to a matrix spike recovery of 68%, all PCB results (except B101X0) were qualified as estimates and flagged "J". It was noted that the matrix spike was analyzed several days after many of the samples and that would have required the qualification of multiple results even if the recovery had been acceptable.

Surrogate Recovery

The analysis of surrogate compounds provides a measure of performance for individual samples. Matrix-specific surrogate compound recovery control windows have been established by the laboratory. When a surrogate compound recovery is outside the control window, all positively identified target compounds associated with the unacceptable surrogate recoveries are qualified as estimates and flagged "J". Non-detected compounds with surrogate recoveries less than the lower control limit are qualified as having an estimated detection limit and flagged "UJ". Non-detected compounds with surrogate recoveries above the upper control limit require no qualification.

Due to a surrogate recovery of 17%, all PCB results in sample B101X2 were qualified as estimates and flagged "J".

Due to a surrogate recovery of 123%, the aroclor-1260 result in sample B101X3 was qualified as an estimate and flagged "J".

All other surrogate recovery results were acceptable.

Precision

Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike/matrix spike duplicate results provide matrix-specific information on the precision of the method for specific target compound classes. Precision is expressed as the relative percent difference (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample. For soil samples, results must be within RPD limits of plus/minus 30%. If RPD values are out of specification and the sample concentration is less than five times the spike concentration, all associated detected sample results are qualified as estimates and flagged "J". If RPD values are out of specification and the sample concentration is greater than five times the spike concentration, no qualification is required.

All matrix spike/matrix spike duplicate precision results were acceptable.

Field Duplicate Samples

One pair of field duplicate samples (samples B101X0/B101W9) were submitted to RLN for analysis. The duplicate sample results were compared using the validation guidelines for determining the RPD between a sample and its duplicate. All field duplicate results were acceptable.

Analytical Detection Levels

Reported analytical detection levels are compared against the 100 Area TDLs to ensure that laboratory detection levels meet the required criteria. The reported detection limit was exceeded for all undetected aroclor-1221 results. Under the BHI statement of work, no qualification is required.

Completeness

Data Package No. H0988-RLN (SDG No. H0988) was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Due to a matrix spike recovery of 68%, all PCB results (except B101X0) were qualified as estimates and flagged "J". It was noted that the matrix spike was analyzed several days after many of the samples and that would have required the qualification of multiple results even if the recovery had been acceptable. Due to a surrogate recovery of 17%, all PCB results in sample B101X2 were qualified as estimates and flagged "J". Due to a surrogate recovery of 123%, the aroclor-1260 result in sample B101X3 was qualified as an estimate and flagged "J". Data flagged "J" is an estimate, but under the BHI validation SOW, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

The reported detection limit was exceeded for all undetected aroclor-1221 results. Under the BHI statement of work, no qualification is required.

REFERENCES

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

DOE/RL-99-35, Sample and Analysis Plan for 105F and 105DR Phase III Below Grade Structures and Underlying Soils.

Appendix 1
Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the procedures herein are as follows:

- Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- J Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- R Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.
- NJ Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).
- N Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2
Summary of Data Qualification

DATA QUALIFICATION SUMMARY

SDG: H0988	REVIEWER: TLI	DATE: 11/21/00	PAGE_1_OF_1_
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
All	J/UJ	All except B101X0	Matrix spike recovery
All	J/UJ	B101X2	Surrogate recovery
Aroclor-1260	J	B101X3	Surrogate recovery

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

Project: BECHTE	-HANFO)RD		1																	
Laboratory: RECF	ia.			1																	
Case	SDG:	H0988		1																	
Sample Number		B101W6		8101W7		8101W8		B101W9		B101X0		B101X1		B101X2		B101X3		B101X4		·	
Remarks	-				-					Duplicate											
Sample Date		8/23/00		8/23/00		8/23/00		8/23/00		8/23/00	Г	8/23/00		8/23/00		8/23/00		8/23/00			
PCB	POL	Result	Q			Result	Q.		a	Recult	a	Result	Q	Result	Q	Result	Q		Q	Result	IQ
Arocior-1016	50		W		3		3	33	3	3,3	٦	33	w	33	w	33	W	33	IJ		+
Aroclor-1221	50		W	66	3	68		68		67	Ù		W	66	W	67	w	66	3		1
Arodor-1232	50		3	33	3		3		3	33		33	w	33	w	33	w	33	3		\top
Arcolor-1242	50		3	33	3	33			3	33	Ü	33	w	33	w	33	w	33	W		\top
Arodor-1248	50		W	33	υJ	33	3		3	33		33	W	33	w		w		W		1
Aroclor-1254	50		W	33	υJ	33		33	3	33	U		w		IJ	33	w		w		\top
Arodor-12 80	50	33	u	33	3	33	3	33	3	33	U	85	J	27	J	76		29			\top
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RPN Batch Nu	mber: 00081362	Client: THU-E				01 Page: 1	•
	Cust ID:	B101W6	3101W 7	B101W7	B101W7	B101W#	B101W9
Sample	R P₩# :	001	002	002 MS	002 MSD	003	004
Enformation	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	DG/KG	UG/KG	UG/KG	UG/KG	DG/KG	UG/KG
lurrogate:	Tetrachloro-m-xylene	98 %	105	95 %	90 %	85 \$	102
	Decachlorobiphenyl	97 t	104	80 %	81 \$	82 1	105
roclor-1016		33-v-J	- 33" U- 17		33U··		
		65 U	66 D 1	55 U	66 T	66 U	j 66
roclor-1232		33 0	33 0	33 U	33 U	33 U	33
coclor-1242		23 0	33 U	33 U	33 U	33 U	33
mclor-1242		33 บ	33 U	33 0	33 T	33 0	33
			** -				
roclor-1254		33 U	33 U 1.	60 t	74 8	33 U.	.1, 33
roclor-1254		33 U V	33 U V	60 t	74 * - 33 U	33 U	33
roclor-1254		1.			· 33 U		
roclor-1254 roclor-1260		33 ∪ ₩	33 ∪ ₩	33 0	9101X4 F	33 D	PBLEYG BS
roclor-1254 roclor-1260	Cust ID:	33 U V	33 U √	9101X3	9101X4 F	33 U	PBLEYG BS
aroclor-1254 aroclor-1260 ample	Cust ID:	33 U V 23 U V 2005	33 U V 8101X2 606 SOIL 1.00	9101X3 007 SOIL 1.00	33 U 2101X4 E 068 0 SOIL 1.00	33 U BLETG CLE1056-HB1 SOIL 1.00	PBLEYG BS COLE1056-M SOIL 1.00
roclor-1254 roclor-1260	Cust ID: RFW#: Matrix:	33 U V 3101x1 005 SOIL	33 U V 8101X2 606 SOIL	9101X3 007 SOIL	33 U 2101X4 E 068 0 SOIL	BLETG CLE1056-HB1 SOIL	PBLEYG BS COLE1056-M SOIL 1.00
roclor-1254 roclor-1260 ample nformation	Cust ID: RFW#: Matrix: D.F.: Units: Tetrachloro-m-xylene	33 U V #101x1 005 SOIL 1.00 UG/KG	33 U V 8101X2 006 SOIL 1.00 UG/RG	33 U B101X3 007 SOIL 1.00 UG/KG	33 U 2101x4 E 008 0 SOTL 1.00 UG/RG 92 %	33 U 20LE1056-NES1 SOIL 1.00 UG/KG 105 %	90LEYG BS 00LE1056-M SOIL 1.00 UG/KG
ample nformation	Cust ID: RFW#: Matrix: D.F.: Units: Tetrachloro-m-xylene Decachlorobiphenyl	33 U V #191x1 005 SOIL 1.00 UG/KG	33 U V 8101X2 006 SOIL 1.00 UG/KG 60 % 17 % %	007 SOIL 1.00 UG/KG	33 U 2101X4 S 008 0 SOIL 1.00 UG/KG 92 % 88 %	33 U PELETO POLE1056-HEE1 SOIL 1.00 UG/KG 105 % 117 %	PBLKYG BS 00LR1056-M SOIL 1.00 UG/KG
ample nformation	Cust ID: RFW#: Matrix: D.F.: Units: Tetrachloro-m-xylene Decachlorobiphenyl	33 U V #191x1 005 SOIL 1.00 UG/KG 112 \$ 109 \$	33 U V 8101X2 006 SOIL 1.00 UG/KG 60 % 17 % %	007 SOIL 1.00 UG/KG	33 U 2101X4 E 008 0 SOIL 1.00 UG/KG 92 % 88 %	33 U PELETO CLE1056-HER1 SOIL 1.00 UG/KG 105 % 117 %	PBLEYG BS 00LE1056-ME SOIL 1.00 UG/KG
ample nformation urrogate:	Cust ID: RFW#: Matrix: D.F.: Units: Tetrachloro-m-xylene Decachlorobiphenyl	33 U V 2005 SOIL 1.00 UG/KG 112 * 109 *	33 U V 8101X2 006 SOIL 1.00 UG/KG 60 % 17 % %	007 SOIL 1.00 UG/KG	33 U 2101X4 E 008 0 SOTL 1.00 UG/KG 92 % 89 %	33 U PELETO CLE1056-HER1 SOIL 1.00 UG/KG 105 % 117 %	PBLEYG BS 00LE1056-ME SOIL 1.00 UG/K0 130 * 121
ample nformation urrogate: roclor-1016 roclor-1221	Cust ID: RFW#: Matrix: D.F.: Units: Tetrachloro-m-xylene Decachlorobiphenyl	33 U V #191x1 005 SOIL 1.00 UG/KG 112 \$ 109 \$	33 U V 8101X2 006 SOIL 1.00 UG/KG 60 * 17 * *	33 U 2101X3 007 SOIL 1.00 UG/KG 118	33 U 2101x4 F 008 0 SOTL 1.00 UG/KG 92 % 88 %	33 U **BUETG** **BUE	9BLEYG BS 00LE1056-ME SOIL 1.00 UG/KG 130 * 121 33 67
ample nformation errogate:	Cust ID: RFW#: Matrix: D.F.: Units: Tetrachloro-m-xylene Decachlorobiphenyl	33 U V 2005 SOIL 1.00 UG/KG 112 * 109 * 109 *	33 U V 8101X2 006 SOIL 1.00 UG/KG 60 \$ 17 * \$ 33 U 7 66 U 6	33 U J 67 U J	33 U 2011x4 E 008 0 SOTL 1.00 UG/KG 92 % 88 %	33 U **BLETG** **BLETG** **BLETG** **BLETG** **SOIL** 1.00 **UG/KG** 105 † 117 † 117 † 33 U 67 U	9BLRYG BS 00LR1056-M SOIL 1.00 UG/K0 130 * 121 33 67
ample information urrogate: aroclor-1016 aroclor-1221 aroclor-1232 aroclor-1242	Cust ID: RFW#: Matrix: D.F.: Units: Tetrachloro-m-xylene Decachlorobiphenyl	33 U V 2005 SOIL 1.00 UG/KG 112 † 109 † 109 † 33 U J 66 U J 33 U	33 U V 8101X2 006 SOIL 1.00 UG/KG 60 \$ 17 * \$ 33 U 5 66 U 33 U	33 U B101X3 007 SOIL 1.00 UG/KG 118 \$ 123 * \$	33 U 2101x4 E 008 0 SOIL 1.00 UG/KG 92 % 88 %	33 U BLE1056-HB1 SOIL 1.00 UG/KG 105 % 117 % 117 % 67 U 33 U	33 PBLEYG BS COLE1056-ME SOIL 1.00 UG/KC 130 * 121 33 67 33
aroclor-1254 aroclor-1260 sample information	Cust ID: RFW#: Matrix: D.F.: Units: Tetrachloro-m-xylene Decachlorobiphenyl	33 U V B101x1 005 SOIL 1.00 UG/KG 112 * 109 * 109 * 33 U 33 U 33 U	33 U V 8101X2 606 SOIL 1.00 UG/KG 60 % 17 % % 66 U 33 U 33 U 33 U	33 U 2007 SOIL 1.00 UG/KG 118 * 123 * * 123 * * 123 * * 33 U 33 U 33 U	33 U 2101x4 E 008 0 SOIL 1.00 UG/KG 92 % 88 %	33 U BLETG BLETG BOLL 1.00 UG/KG 105 † 117 † 33 U 67 U 33 U 33 U	33 PBLKYG BS COLK1056-ME SOIL 1.00 UG/KG 130 * 121 33 67 33 33

Um Analyzed, not detected. J- Present below detection limit. B: Present in blank. NR= Not reported. NS= Not spiked. % Percent recovery. D= Diluted out. I: Interference. NA= Not Applicable. *= Outside of EPA CLP QC

2

A) 10.13.00

XCT 31 '88 83

	Cust ID:	B101X)	B101K0		B101X0		PDLKYS	PBLKYS BS	,
Sample	R F ₩# :	001	L	001 MS		001 MSD		00LE1088-MB1	00LE1088-ME	31
Information	Matrix:	SOIL		SOIL		SOIL		SOIL	SOIL	
	D.F.:	1.0	0	1.0	Ð	1.0	C	1.00	1.00	3
	Units:	DG/R	Œ	UG/K	G	ug/k	G	ug/kg	UG/KG	3
Surrogate:	Tetrachloro-m-xylene	95	*	88	1	95	ł	95 \$	98	ŧ
	Decachlorobiphenyl	75	ŧ	71	*	81	¥	91 \$	88	1
======================================	PR************************************	*****	-£1	40000442 	-fl=		-£1		果在月里生 是上 非常年 7.7	: <u>f</u> lemenusuusuus
Aroclor-1016			~ U ,	<u>}</u> 33 -	_0	33	·u-			U
Aroclor-1221		67	U Ì	66	Ū	66	Ū	67 U	67	U
Aroclor-1232		33	ŭ	33	Ū	33	Ø	33 Ü	33	υ
Aroclor-1242		33	מ	33	U	33	U	3 3 U	33	σ
Aroclor-1248		33	U	33	Ų	33	U	33 . U	33	U
Arcclor-1254		33	O	75	ŧ	83	ŧ	33 U	86	t
Aroclor-1260		33	0 '	y 33	U	33	U	33 U	33	0

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Cutside of EPA CLP QC

83:1574 BHI S&D MANAEMENT 509 372 9487 000013

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation



Chemical and Environmental Measurement Information

Recra LabNet Philadelphia

Analytical Report

Client: TNU HANFORD BOO-047

B99-04Z

W.O.#: 10985-001-001-9999

Date Received: 08-25-00, 09-01-00

RFW#: 0008L362/0009L459 SDG/SAF#: H0988/B09-042

B99-04Z

PCB

10/14/00

The set of samples consisted of nine (9) soil samples collected on 08-23-00.

The samples and their associated QC samples were extracted on 08-29-00, 09-05-00, and analyzed according to Recra OPs based on SW846, 3rd Edition procedures on 09-14,15,20,29-00. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8082 for Aroclors only.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

- 1. The cooler temperature has been recorded on the chain-of-custody.
- 2. All required holding times for extraction and analysis have been met.
- 3. The samples and their associated QC samples received a sulfuric acid cleanup. The samples from Recra batch 0008L362 received and additional sulfur cleanup.
- 4. The method blank was below the reporting limits for all target compounds.
- 5. Three (3) of thirty-four (34) surrogate recoveries were outside QC limits; however, the surrogate recovery acceptance criteria were met (i.e., no more than one outlier per sample).
- 6. The blank spike recovery was within acceptance criteria.
- 7. All matrix spike recoveries were within acceptance criteria.
- 8. All initial calibrations associated with this data set were within acceptance criteria.
- 9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

The results presented in this report release only to the analytical testing and conditions of the samples at recoips and during score

the intellytical data. Therefore, this report should early be reproduced in its distinct of 21 pages. 000025

All pages of this report are integral pure of



10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

J. Michael Taylor

Vice President

Philadelphia Analytical Laboratory

pc//c/group/data/pre/1095-459.pdb

10-1/3-∞ Date



	Bechtel Hank	ord Inc.	C	HAIN OF CUS	TODY/S	MPLE	ANAL				B	199-042-92	Page 1	of 1
	Collector Johnsten/Burchler		Comp Mil	any Contect le Stankovich	Telepha 531-7	int No. 1620			Project Coord TRENT, SJ	la uto:	Price Code	8L		Maren Ed
17	Project Designation 100 If Area - Pull Protocol		S2000	iling Encetion III-7 Overbunden					SAF Na. 1999-042		Air Quali	47 🗆	21	Days
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Appendix 5

Data Validation Supporting Documentation

LEVEL:	. A	В	(6)	D	E	
PROJECT:	601+ 116-	H-7	DATA PACKAGE	: H0988		
VALIDATOR:			ckt	DATE:][20/00	
CASE:			SDG: HO	9.88		
		ANALYSES	PERFORMED			
□ CLP3/90	□ SW-846 8080	□ SW-846 8081	X 8085.	0	0	
SAMPLES/MAT	RIX BIOIL	4 Btoo	BIOIWT B	101W8 B10	169	
f"	BIOIX/ (
				-		
				50		
Is a case na	rrative presen			((es) No	N/A
						
	TIMES solding times a			(Yes No	N/A

Are DBC retention times acceptable? Yes	No	N/A
Is the GC/MS tuning/performance check acceptable? Yes	No	N/A
Comments:		U
•		
3.2 CALIBRATIONS (METHOD 8080 AND 8081)		\wedge
Are EVAL standard calibration factors and %RSD values acceptable? Yes	No	N/A
Are quantitation column calibration factor %RSD valués acceptable? Yes	No	Ņ/A
Were the analytical sequence requirements met? Yes	No	\N/A
Are continuing calibration %D values acceptable? Yes	No	N/A
Comments:		
Was the initial calibration sequence performed? Yes Was the resolution acceptable in the resolution check mix? Yes Is resolution acceptable in the PEM, INDA and INDB? Yes Are DDT and Endrin breakdowns acceptable? Yes Are retention times in PEMs and calibration mixes acceptable? Yes Are %RSD values in the PEMs acceptable?	No No No No No No No	N/A N/A N/A N/A
Was the resolution acceptable in the resolution check mix? Yes Is resolution acceptable in the PEM, INDA and INDB? Yes Are DDT and Endrin breakdowns acceptable? Yes Are retention times in PEMs and calibration mixes acceptable? Yes Are RPD values in the PEMs acceptable? Yes Comments:	No No No No No	N/A N/A N/A N/A
Was the resolution acceptable in the resolution check mix? Yes Is resolution acceptable in the PEM, INDA and INDB? Yes Are DDT and Endrin breakdowns acceptable? Yes Are retention times in PEMs and calibration mixes acceptable? Yes Are RPD values in the PEMs acceptable? Yes Are %RSD values acceptable?	No No No No	N/A N/A N/A N/A
Was the resolution acceptable in the resolution check mix? . Yes Is resolution acceptable in the PEM, INDA and INDB? Yes Are DDT and Endrin breakdowns acceptable? Yes Are retention times in PEMs and calibration mixes acceptable? Yes Are RPD values in the PEMs acceptable? Yes Are %RSD values acceptable? Yes Comments:	No No No No No	N/A
Was the resolution acceptable in the resolution check mix? Yes Is resolution acceptable in the PEM, INDA and INDB? Yes Are DDT and Endrin breakdowns acceptable? Yes Are retention times in PEMs and calibration mixes acceptable? Yes Are RPD values in the PEMs acceptable? Yes Comments:	No No No No No	N/A N/A N/A N/A

Are retention times acceptable in the	N.	
PEMs, INDA and INDB mixes? Yes	No	
Are RPD values in the PEMs acceptable? Yes	No	N/A
Are the DDT and endrin breakdowns acceptable? Yes	No	N/A
Was GPC cleanup performed? Yes	No	N/A
Is the GPC calibration check acceptable? Yes	No	N/A
Was Florisil cleanup performed? Yes	No	N/A
Is the Florisil performance check acceptable? Yes	No	W/A)
Comments:		
4. BLANKS		
Were laboratory blanks analyzed? Yes	No	N/A
Are laboratory blank results acceptable? (es)	No	N/A
Were field/trip blanks analyzed? Yes	(M)	N/A
Are field/trip blank results acceptable? Yes Comments: 10 Field blank	No	
5. ACCURACY		
Were surrogates analyzed? Yes	No	N/A
Are surrogate recoveries acceptable? Yes	(No)	N/A
Were MS/MSD samples analyzed?	No	N/A
Are MS/MSD results acceptable? Yes	6	N/A
Were LCS samples analyzed? Yes	No	W/A
Are LCS results acceptable? Yes	No	(N/A
Comments: Surveyed XZ - 1700 Jall		
43 - 12370 J 1240		
M3- Jull hut X0 (6870)		

6.	PRECISION		
Are	MS/MSD RPD values acceptable? Yes	No	N/A
Are	laboratory duplicate results acceptable? Yes	No	N/A
Are	field duplicate RPD values acceptable? Yes	No	N/A
Are	field split RPD values acceptable? Yes	No .	(N/A)
Com	ments: XO/W4 - FD		
7.	SYSTEM PERFORMANCE		
Is o	chromatographic performance acceptable? Yes	No	(M/A)
Are	positive results resolved acceptably? Yes	No	N/A
	ments:		$\underline{}$
Is	COMPOUND IDENTIFICATION AND QUANTITATION compound identification acceptable? Yes compound quantitation acceptable? Yes ments:	No No	M/A N/A
	REPORTED RESULTS AND QUANTITATION LIMITS		
	results reported for all requested analyses?	No	N/A
	all results supported in the raw data? Yes	No	MA
	results meet the CRQLs? Yes	160	N/A
	ments: No - all arector 1221 nanditub our	——————————————————————————————————————	

Appendix 6

Additional Documentation Requested by Client

Recra LabNet - Lionville Laboratory PCB ANALYTICAL DATA PACKAGE FOR TNU-HANFORD B99-042

DATE RECEIVED: 08/25/00 RFW LOT # :0008L362

CLIENT ID	rfw #	MTX	PREP #	COLLECTION	EXTR/PREP	analysis
					1	
B101W6	001	S	00LE1056	08/23/00	D8/29/00	09/14/00
B101W7	002	S	00LE1056	08/23/00	08/29/00	09/15/00
B101W7	002 MS	Ś	00LE1056	08/23/00	08/29/00	09/20/00
B101W7	002 MSD	S	QQLE1056	08/23/00	08/29/00	09/20/00
B101WB	003	3	00LB1056	08/23/00	08/29/00	09/20/00
B101W9	004	S	00LE1056	08/23/00	08/29/00	09/15/00
B101X1	005	\$	00LE1056	08/23/00	08/29/00	09/15/00
B101X2	006	Ŝ	00LE1056	08/23/00	bB/29/00	09/20/00
B101X3	007	S	QOLE1056	08/23/00	08/29/00	09/15/00
B101X4	008	S	00LE1056	08/23/00	08/29/00	09/20/00
LAB QC:					1 1	
						
PBLKYG	MB1	s	00LE1056	N/A	08/29/00	09/14/00
PBLKYG	MB1 BS	S	001E1056	N/A	08/29/00	09/14/00



OCT 31 '00 03:15PM BHI 5&D MANAGEMENT 509 372 9487

P.8/21

Recra LabNet - Lionville Laboratory PCB ANALYTICAL DATA PACKAGE FOR TNU-HANPORD B99-042

DATE RECEIVED: 09/01/00

RFW LOT # :00091459

CLIENT ID	RPW #	MIX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B101X0 B101X0	001 001 MS	 S S	00LE1088	08/23/00 08/23/00	09/05/00 09/05/00	09/29/00
B101X0	001 MSD	S	00LE1086	·	09/05/00	09/29/00
LAB QC:						
PBLKYS PBLKYS	MB1 BS	<u>\$</u>	00LE1088 00LE1088	n/a n/a	09/05/00 09/05/00	09/29/00 09/29/00

ساواوا

Date:

21 November 2000

To:

Bechtel Hanford Inc. (technical representative)

From:

TechLaw, Inc.

Project:

100H Areas - Full Protocol - Waste Site 116-H-7 Overburden Subject: Inorganics - Data Package No. H0988-RLN (SDG No. H0988)

INTRODUCTION

This memo presents the results of data validation on Data Package No. H0988-RLN prepared by RECRA LabNet (RLN). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Medie	Validation	Analysis
B101W6	8/23/00	Soil	С	See note 1
B101W7	8/23/00	Soil	C.	See note 1
B101W8	8/23/00	Soil	С	See note 1
B101W9	8/23/00	Soil	С	See note 1
B101X0	8/23/00	Soil	С	See note 1
B101X1	8/23/00	Soil	С	See note 1
B101X2	8/23/00	Soil	c.	See note 1
B101X3	8/23/00	Soil	С	See note 1
B101X4	8/23/00	Soil	С	See note 1

^{1 -} Chromium VI by 7196A; ICP metals by 6010B (arsenic, chromium and lead); mercury by7471A.

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL May 1998). Appendices 1 through 6 provide the following information as indicated below:

- Appendix 1. Glossary of Data Reporting Qualifiers
- Appendix 2. Summary of Data Qualification
- Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
- Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
- Appendix 5. Data Validation Supporting Documentation
- Appendix 6. Additional Documentation Requested by Client

DATA QUALITY PARAMETERS

Holding Times

Analytical holding times for metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be analyzed within 6 months for ICP metals; 30 days for chromium VI; and 28 days for mercury.

Due to the holding time being exceeded by less than twice the limit, the chromium VI result in sample B101X0 was qualified as an estimate and flagged "J".

All other holding times were acceptable.

• Preparation (Method) Blanks

Preparation Blanks

At least one preparation blank, consisting of deionized distilled water processed through each sample preparation and analysis procedure, must be prepared and analyzed with every sample delivery group. In the case of positive blank results, samples with digestate concentrations less than five times the preparation blank value have had their associated values qualified as non-detected and flagged "U". Samples with concentrations of greater than five times the highest blank concentration do not require qualification.

In the case of negative blank results, if the absolute value exceeds the contract required detection limit (CRDL), all nondetects are rejected and flagged "UR" and all detects that are less than ten times the absolute value of the associated preparation blank result are qualified as estimates and flagged "J". If the absolute value of the negative preparation blank is greater than the instrument detection limit (IDL) and less than or equal to the CRDL, all nondetects are qualified as estimates and flagged "UJ" and all detects less than ten times the absolute value of the blank are qualified as estimates and flagged "J". If the sample results are greater than ten times the absolute value of the preparation blank, no qualification is necessary.

All preparation blank results were acceptable although the target detection limit (TDL) was exceeded for chromium VI.

Field Blank

No field blanks were submitted with the sample data group (SDG), therefore, no field blank data was present for review.

Accuracy

Matrix Spike

Matrix spike (MS) analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations. Matrix spike recoveries must fall within the range of 70% to 130%. Samples with a spike recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR". Samples with a spike recovery of 30% to 69% and a sample result less than the IDL are qualified "UJ". Samples with a spike recovery of greater than 130% or less than 70% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a spike recovery greater than 130% and a sample result less than the IDL, no qualification is required.

All matrix spike recovery results were acceptable.

Precision

Laboratory Duplicate Samples

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of matrix spike duplicate (MSD) analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the CRDL and the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All laboratory duplicate results were acceptable.

Field Duplicate

One set of field duplicate samples were submitted for analysis (B101W9/B101X0). The RPD for ICP chromium (36%) and lead (39%) were outside the required parameters. Under the BHI statement of work, no qualification is required.

Analytical Detection Levels

Reported analytical detection levels are compared against the 100 Area Remedial Action Sampling and Analysis Plan TDLs to ensure that laboratory detection levels

meet the required criteria. The TDL was exceeded for chromium VI in all undetected samples. Under the BHI statement of work, no qualification is required.

Completeness

Data package No. H0988-RLN (SDG No. H0988) was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Due to the holding time being exceeded by less than twice the limit, the chromium VI result in sample B101X0 was qualified as an estimate and flagged "J". Data flagged "J" is an estimate, but under the BHI validation SOW, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

The TDL was exceeded for chromium VI in all undetected samples. Under the BHI statement of work, no qualification is required.

REFERENCES

BHI, MRB-SBB-A23665, Validation Statement of Work, Bechtel Hanford Incorporated, September 5, 1997.

DOE/RL-96-22, Rev. 1, 100 Area Remedial Action Sampling and Analysis Plan, U.S. Department of Energy, May 1998.

Appendix 1
Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with BHI validation SOW are as follows:

- Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.
- BJ Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.
- Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.
- NJ Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).
- Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2
Summary of Data Qualification

DATA QUALIFICATION SUMMARY

SDG: H0988	REVIEWER: TLI	DATE: 11/21/00	PAGE_1_0F_1_
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Chromium VI	J	B101X0	Holding time exceeded

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

Project: BECHTEL		<u></u> .		-{														
Laboratory: RECR/				4											•			
Case	SDG: H			 									_,					
Sample Number		B101W8		B101W7		B101W8		B101W9		B101X0		B101X1	_]	B101X2	B101X3		B101X4	_
Remarks				<u> </u>		<u></u>				Duplicate								
Sample Date		8/23/00		8/23/00		8/23/00		8/23/00		8/23/00		8/23/00		8/23/00	8/23/00		8/23/00	
norganies		Result		Result				Result		Result		Result Q		Result Q	Revult	a	Result	Ī
Chromium VI	0.1	0.40	U	0.40		0.40		0.40	U	0.40	IJ	0.40 U		0.59	0.40	٥	0.40	Ţ
Arsenio	51.05	3.0		2.9		2.3		2.5		2.1		5.0		4.4	3.7		4.3	Т
Chromium (total)	0.5	10.7		10.2		10.7		9.8		6.8		10.8		11.4	10.8	Г	11.2	Т
Mercury	0.05	0.02	U	0.02		0.02		0.02	U	0.01	U	0.02 U	_1	0.02 U	0.02	υ	0.02	π
Lead	2	5.4		5.0		4.0		5.2		3.5		12.9		11.0	8.3		9.3	Т
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INDEPARTOR DATA STREET REPORT 09/21/60

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		Chromity, Total	10.7	20/20	90.0	4:0	
		Manualy, Total	1.62 m		4.02	F. 6	
		Land, Total	4.8		9A. •	:	
-662	Blouw	Artenia, Total	:		1.31	•	
		Chromium. Botal	16.3		•••	1.0	
		Meroury, 'metal	P. 60.4		***	1.0	
		Land, Town!	B.0	_	61.0	9.4	
1963	Bigins	Arrenia, Total	ų,		14.0	# •:•	
		Chemita, Tobal	10.7	12/0H	B.0.8	0.4	
		Mercury, fotal	0.03 u			P. 4	
		Lord, Total	;	May / Car	67.4	7.	
1 00	Blothe	Artelia, fotal	7.4	80/D8	9.3.	1.1	
		Chromitan, Total	9.4		. 0.	9.1	
		Mercenty, Total			10.0	1.0	
		Land, Youth	2.0		÷.	4:4	
N 00-	22,0123	Arrende, Setal	•,		4c.0	1. 0.	
		Chaquium, Total	10.1		ė.	1.0	
		Steering, Total	. 62.		*	#.#	
		Load, Yokal	12.9	01/2m	pa	7.0	

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11/21/00

000012

Recra LabNet - Lionville

INORGANICS DATA SURGARY REPORT 10/12/00

CLIENT: THU-HAMFORD B99-042

RECEA LOT #: 00091459

WORK ORDER: 10985-001-001-9999-00

					KELOKIING	DILUTION
SAMPLE	SITE ID	AKALTTE	RESULT	UNITS	LIMIT	FACTOR
	************	*******************			********	*******
-001	B101X0	Arsenia, Total	2.1	MG/KG	0.32	1.0
		Chromium, Total	6.8	MG/KG	0.08	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Lead, Total	3.5	Mg/kg	0.20	1.0

000012A

5m0/2/01

CFIERL! LMG-WYRECHD RES-OCS

Meura Labbat - Licertile

SECRY FOR &: COREFFEE

INOSERVICE DAZA SUBMERTY REPORT 09/21/06

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INCREMICS DATA SUPPLIAN REPORT 09/25/00

ogra Labbac - Michville

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33K/44K	۳,					#CTA TOT 0: 00091/459	
6	0.01	********	TIME	PRILIBORIE		1009[459	

11/20/00



Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

P.1/27



Chemical and Environmental Measurement Information

Recra LabNet Philadelphia Analytical Report

Client: TNU-HANFORD B99-042 RFW#: 0008L362/0008L459

SDG/SAF#: H0988/B99-042

W.O.#: 10985-001-001-9999-00

Date Received: 08-25-00 and 09-01-00

METALS CASE NARRATIVE

- 1. This narrative covers the analyses of 9 soils samples.
- 2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.
- 3. All analyses were performed within the required holding times.
- 4. All cooler temperatures have been recorded on the Chain of Custodies.
- 5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).
- б. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
- 7. All preparation/method blanks (MB) were within method criteria (less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
- 8. All ICP Interference Check Standards were within control limits.
- 9. All laboratory control samples (LCS) were within the laboratory control limits. Refer to the Inorganics Laboratory Control Standards Report.
- 10. All matrix spike (MS) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.
- All duplicate analyses were within the 20% Relative Percent Difference (RPD) control 11. limits. Refer to the Inorganics Precision Report.
- For the purposes of this report, the data has been reported to the Instrument Detection Limit 12. (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.

OCT 31 '00 03:33PM BHI S&D MANAGEMENT 509 372 9487

P.2/27

13. I certify that this sample data package is in compliance with; SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

J. Michael Taylor Vice President

Philadelphia Analytical Laboratory

pc#m0#-367

Date



P.1/22



Chemical and Environmental Measurement Information

Recra LabNet Philadelphia Analytical Report

Client: TNU-HANFORD B00 042 899-042

OCT 31 '00 03:23PM BHI S&D MANAGEMENT 509 372 9487

W.O. #: 10985-001-001-9999-00

Date Received: 08-25-00:09-01-00

RFW#: 0008L362 and 0009L459

SDG#: H0988 699-042 SAF#: B00-042

INORGANIC CASE NARRATIVE

- This narrative covers the analyses of 9 soil samples. 1.
- 2. The samples were prepared and analyzed in accordance with the methods checked on the attached glossary.
- 3. Sample holding times as required by the method and/or contract were met.
- 4. The cooler temperatures were recorded on the chain-of-custody.
- The method blanks for Chromium VI were within method criteria. 5.
- The Laboratory Control Samples (LCS) for Chromium VI were within the laboratory 6. control limits.
- The matrix spike recoveries for Chromium VI were within the 75-125% control limits. 7.
- The replicate analyses were within the 20% Relative Percent Difference (RPD) control 8. limit
- Results for solid samples are reported on a dry weight basis. 9.
- I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

I. Michael Taylor

Vice President

Philadelphia Analytical Laboratory

est parts of the analysissi siste. Therefore, size report the three-less and he cape

31 '88 83:18PH BHISED MANAGEDENT 389 372 9

1500 > 8000 Page 1 of 2 B99-842-92 CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST Rechtal Hanford Inc. Project Coordinates TRENT, SI Tidephose No. 231-7630 Date Turneround Prior Cole III. Mile Stadenich Johannes/Burchler 21 Days SAF No. Sampling Location (8011-7 Overlandes Air Custity 📋 reject Designation B99-812 100 M Area - Pull Protecti Hem 504 40988 Mathed of Bilgraces Federal Depress Jidd Leghoub No. EL-1586-3 COA R116H72606 Office Property No. 44 W. SR GOOS32 Balpped To TMARKECILA Possible Cabople Mazarthreenaris Coul of Pagg-process knowledged Data review indicate page Content x50 ppm Preservation Type of Container B No. of Contrinced Special Mondflag undfar Storagi Volume SAMPLE AMALYSIS Tiello Salara No. PAY KAY 8191W6 **BOOL** RIGILAT **BOUL** SOIL eig wie X OCIL. BYOTHE BOIL BIDIXO Market 1 SPECIAL PRINCIPONS CHARGE FORESTOR Ritheren burings " EAD-HI or Their He becomed on Trained the martine los W o'Tiday G-OS po Ab PS-Street (path T-Street Q1-Street Q1-S Date/Time The LABORATORY | Best-18y SECTION PINAL BAMPLE | Mayord Maded PETOSTINEN

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812-CE-911 (10/00)

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P.18/21

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Appendix 5

Data Validation Supporting Documentation

WHC-SD-EN-SPP-002, Rev. 2

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

LEVEL:	A	8	(6)	D	Ε
PROJECT:	16-14-7		DATA PACKAGE	: H0988	•
VALIDATOR:	TLI	LAB: Pe	cnt	DATE: // 7	7/00
CASE:			SDG: Ho	५ ९४	
		ANALYSES	PERFORMED		
CLP/ICP	CLP/GFAA	C CLPANs	☐ CLP/Cyeride	D	0
Д.8W-846ЛСР	□ 8W-846/GFAA	& SW-848/Hg	☐ SW-846 Cymide	KCK	0
SAMPLES/MATE	IX BION	UL B1014	07 B101W	8 B1014	9
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WHC-SD-EN-SPP-002, Rev. 2

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS	
Were initial calibrations performed on all instruments? Yes	No. NA
Are initial calibrations acceptable? Yes	No N/A
Are ICP interference checks acceptable? Yes	No N/A
Were ICV and CCV checks performed on all instruments? Yes	No N/A
Are ICV and CCV checks acceptable? Yes	No N/A
Comments:	
4. BLANKS	
Were ICB and CCB checks performed for all applicable analyses? Yes	No N/A
Are ICB and CCB results acceptable?	No WA
Were preparation blanks analyzed? Yes	No N/A
Are preparation blank results acceptable?	No N/A
Were field/trip blanks analyzed? Yes	100 N/A
Are field/trip blank results acceptable? Yes	No NA
Comments: NO FB gb dat hur all on 5x	
*	
5. ACCURACY	·
Were spike samples analyzed?) No N/A
Are spike sample recoveries acceptable? Yes	No N/A
Were laboratory control samples (LCS) analyzed? Yes	No N/A
Are LCS recoveries acceptable? Yes	No N/A
Comments:	

000023

WHC-SD-EN-SPP-002, Rev. 2

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

6. PRECISION		
Were laboratory duplicates analyzed?	No	N/A
Are laboratory duplicate samples RPD values acceptable?	No	N/A
Were ICP serial dilution samples analyzed? Yes	No	NID
Are ICP serial dilution %D values acceptable? Yes	No	1
	6	N/A
Are field split RPD values acceptable? Yes	No	
Comments: CK (toh) led our (See namet)		_
7. FURNACE AA QUALITY CONTROL		$\overline{}$
Were duplicate injections performed as required? Yes	No	[(N/A
Are duplicate injection %RSD values acceptable? Yes	No	N/A
Were analytical spikes performed as required? Yes	No	N/A\
Are analytical spike recoveries acceptable? Yes	No	N/A
Was MSA performed as required?	No	N/A
Are MSA results acceptable? Yes Comments:	No	N/A
8. REPORTED RESULTS AND DETECTION LIMITS		
Are results reported for all requested analyses? es	No	N/A
Are all results supported in the raw data? Yes	No	
Are results calculated properly? Yes	No	M
Do results meet the CRDLs? Yes	1 6	N/A
Comments: CRUT U's		
	•	
		—

Appendix 6

Additional Documentation Requested by Client

Near Lablet - Licerille

INCHESSION PRECISE AND ASSOCIATION

OLINE !!	CALERT: THY-ENTINE BAS-642		4	METAL LOT &: 0050E363	************	
HORK ORDI	HORK CHOER: 10946-041-641-9995-06	8				
			THEFT			DITMETOR
ENERGY	Sire to	AMALTER	N. Section	NAPPLICATE EPO	Q T	SACTOR (RA
	######################################	***************************************	744604	eventure betterdant sentence	eritant.	
-001KW	310196	Artenda, Total	9 ,4	2.4	14.3	1.6
		Chromium, Total	£ .1	::	. 64.0	1.1
		Marcury, Total	O. 11	. 634	2	9.1
		Land, Total	:	:	1.0	1.0

OCT 31 '00 03:34PM BHI S&D MANAGEMENT S09 372 9487

INCHANTICS ACCURACY REPORT 09/21/06

CLEBIT: Y HOME ORDA	CLIBRY: 190-1601 839-844 Work SPORK: 10945-661-661-8995-06 SAUPLE SITH IN IN	OF AMACKTE	SPECK STEEKS	MANNA ZOP B1 91444 MANNA ANOME MENULY ANOME	ENTERN LOW E1 94440.362 ENTERN BUILDS 44000F 44000V		DESCRIPTION PACTOR (APK)
		SERVICE CONTRACTOR CONTRACTOR OF STREET, STREE	- Gomes		Annual sections		
-001	BLOSING	Aproads, Robel	171	8 ,4	10.	4	1.4
		Christian, Noted	20.3	20.7	10.6	4	1.0
		Meronay, Total	0.18	0.62m	0.17	100.4	# #
		Lond, Total	47.2	**	46.4		7.

P.8/2

Regra Labitat - Liografile

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**************************************			99Z1554-MM1		STEP ID	WORK CREEK: 18985-00%-901-9999-00	CLINE: 280-MARON 851-842
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0.42 x 40/80	ME/20	0.09 u ME/RS	MI/MK N 94'0		Q I		HEALT FOL 4: GOOFFIELD
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Received: 31.Oct.00 05:28 PM From: UnknownSender To: 2087238944

OCT 31 '00 03:24PM BHI S&D MANAGEMENT 509 372 9487

P.5/22

Recra Labilet - Liquidle

INDRIGARIOS METHOD BLANK DATA SUMMARY PAGE 09/31/00

CLIENT: THE-HANFORD 899-042

RECEA LOT 4: 000EL742

WORK ORDER: 10945-001-001-9559-00

					Sherrane)	OYPOSTOR
SMPLE	SITH ID	MOLITE	RESULT	DRITH	LINIT	FACTOR
******	******		2 2 <i>2 2 4 4 4 4</i>	-	******	
BLANKLÓ	COLVIA+9-MB1	Chronium VI	0.40 u	163/KG	0.48	1.0

OCT 31 '00 03:24PM BHI S&D MANAGEMENT 509 372 9487

F.6/22

Roura Labilet - Lionville

INORGANICS ACCURACY REPORT 09/21/00

CLIERT: THU-HAMFORD 899-042

RECEA LOT 4: 000412362

MCRK ORDER: 10985-001-001-9999-00

			#FIXED	INITIAL	491330		DILUTION
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	**********		*****		4 2000		********
-601	B101W6	Soluble Chromium VI	3.7	0.40M	4.0	65.1	1.0
		Insoluble chromium VI	942	0.404	1140	64.1	100
BENICE	COLVIRAD-MRI	Soluble Chronium VI	4.0	0.404	4.0	100.3	1.0
		Insolubie Chromium VI	1220	0-494	1180	103.6	100

Powered by Fax.com Page: 7 of 22

P.7/22

Recra Lubiles - Licaville

INCOMMINE PRECISION PEPORT 09/21/00

CLIENT: INC-RESPORD E99-042

RECRA LOT #: 00081342

WOUR CROSE: 10985-001-001-9999-00

			DEITTAL				DILUTION
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		Chromium VI	0.40u	0.40u	WC	. •	1.0

OCT 31 '88 83:25PM BHI S&D MANAGEMENT 589 372 9487

INCREASIGE RECIDO BEANES DECA SURMANY PROK 09/14/00

CLIENT: THO-KAMPORD 899-042 WORK CHEER: 10985-001-001-9999-00

THE THOUVER SIZE ID Chresius VI STATES.

BITTIBLE FLANCE

RECEA LOT \$1 00091489

0.40 H HQ/KB TATE OF

DILUTION

0000022

OCT 31 '80 83:25PM BHI S&D MANAGEMENT 589 372 9487

ecra Labitet - Liouville

DESGRIEGS ACCURACY REPORT 09/29/00

	BITY DECT O		-0CT	PROPERTY.	STANTE B		HOME CREATER:	ממבי הפונה
	TER-1501AT00		STOTE				HORK (2222): 18985-001-001-9999-00	CLICKY THU-NAMED B99-042
Inselvate Chronium VI 1,40	Seluble Chrosdes YZ	Insoluble Chronium VI	Soluble Chromium VI		ANDLESTER		Ġ	
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Received: 31. Oct.00 05:28 PM From: UnknownSender To: 2087238944

OCT 31 '000 03:25PM BHI 5&D MANAGEMENT 509 372 9487

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DECEMBER SERVICES OF SOME

PECEA LOT &: 0003LA59

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THE

₹30000

DEC 13 '00 06:09PM BHI S&D MANAGEMENT 509 372 9487

P.1/3

Duncan, Jeanette M

From: Sent;

Weiss, Richard L

Monday, November 27, 2000 4:34 PM

To: Subject: Duncan, Jeanette M

Review of Validation Package for SDG H0988

Jeanetta.

The following are my comments on the validation packages for SDG H0988:

Rediochemistry - pg. 3 & pg. 4: The TDL for Eu-155 was missed for all samples. Delete "except B101X2"

Inorganics - pg. 1: Project is incorrect. Change to "100H Areas...".

PCB - pg. 1: Project and Waste Site is incorrect. Change to "100H Areas - Full Protocol - Waste Site 115-H7 Overburden"

Need to add an additional page to appendix 6 - Include page 8 from the original data package to show prep/analysis dates for sample B101X0.

Rich

changes properly incorporated

Remain 01/02/07

DEC 13 '00 06:09PM BHI S&D MANAGEMENT 509 372 9487

P.2/3

	Review Comment R	Record (RCR)		1. Dute 12/05/00	2. Roview No. QA-0050	
				3. Project 100-H	4. Page of 1	
s D	Document Number(s)/Tüle(s)	6. Program/Project/ 7. Building Number	7. Reviews:	8. Organization/Group	9. Location/Phone	
SDGS	SDG No. H988	100-H Areas - Fuil Protocol, Waste Sies 116-H-7 Overburden		medical farms		
7.	Contracts Submitted Approved:	10. Agreement with indicated communical disposition(s)	nent disposition(x)	11. CLOSED		
18	Organization Manager (Optional)	Reviews	Reviewee/Polet of Contact	10/70/10	ML N. M. Reviewerstroins of Contect	1
		AuthortOriginates	réglation		AuthorfOriginator	1
7. THE	13. Comment(s)/Discrepancy(s) (Provide technical comment and detailed recommendation of the action resolve the discrepancy/problem indicated.)	nical justification for the retion required to correct/	14. Hold Point 15. Disposition	15. Disposition (Provide justification if NOT accepted.)		16. Startus
	Radiochemistry: Page 603, Detection Limits and Page 604 Minor Deficiencies states "annitan-155 in all samples except B101X2." This should read "Garopina-155 in all samples."	nd Page 004 Minor s except B101X2." This	76	Come		487
7	Reorganic: The laboratory data sheet for sample B101X0 6010B metals and Hg is missing from the report.	e BiolXG 6010B metals and	JA.	con-		
	PCB: OK No Consents					
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